IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Donald J. Merkley et al.
Application No.:	09/970,389
Filing Date:	October 2, 2001
Group Art Unit:	1791
Examiner:	Mark Halpern
Confirmation No.:	9683
For:	Method and Apparatus for Reducing Impurities in Cellulose Fibers for Manufacture of Fiber Reinforced Cement Composite Materials

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Commissioner for Patents
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DECLARATION UNDER 37 C.F.R. § 1.132

I, Caidian Luo, declare that:

1. I am a named inventor in the above-identified U.S. Application No. 09/970,389 filed October 2, 2001 (hereinafter, the "'389 Application").

2. I, as one of skill in the pertinent art of the application for patent, confirm that the disclosure of the as-filed application for patent is an original idea and I, the inventor, realized among other things and, as reflected within the scope of the claims, a fiber cement building material incorporating cellulose fibers wherein at least a portion of such fibers are pretreated to reduce COD (chemical oxygen demand) content of the fibers to less than 4.5 kg/ton.

3. Applicants have found their claimed method to be a novel, non-obvious and effective method of reducing COD content in fibers not previously disclosed or suggested by others.

4. The pending claims of the '389 Application have been rejected by the Examiner for being anticipated by or, in the alternative, obvious over Japanese Publication No. JP 11-010631 (hereinafter, "Yamada"). However, it is clear from the very disclosure of Yamada that the reference does not teach or suggest each and every element as claimed in the '389 Application. For example, Yamada does not teach or suggest fibers that are pretreated nor does the reference teach or suggest fibers that are pretreated to reduce COD content of the fibers to less than 4.5 kg/ton. The teachings of Yamada may not be relied for anticipation or obviousness because the Yamada reference teaches none of the features as claimed by Applicants' claimed invention.

5. Yamada teaches how to reduce COD content in filtered water obtained from a cement slurry but teaches nothing about reducing COD content from fibers or from a fiber slurry. Yamada teaches preparing a cement slurry of Portland cement and pulps added to distilled water and mixing the cement slurry for 5 minutes before dehydrating the cement slurry with a dehydrating felt (used for making paper) by suctioning the felt to extract "filtrated water" (paragraph [0007], [0008]). Hence, the Yamada reference performs a very different method than that disclosed by Applicants claimed invention and the Yamada reference does not allow one to even measure a COD content of the fiber itself. One skilled in the relevant art knows that COD content will not be high when performed using a method described by Yamada because one will not be able extract COD contents of fibers from a cement slurry nor can one recover COD contents of fibers from a cement slurry because the cement and fibers are mixed together and then only for 5 minutes before dewatering to collect the water. The method described by Yamada only allows one to obtain a falsely low value of the COD content from a cement slurry and does not allow one to obtain any value of the COD content from the fiber. A fiber slurry and cement slurry are not equivalent in their material components. Yet, one knows that fibers will normally trap COD contents rather than release them

into water. As such, any COD value obtained from water extracted from a cement slurry that is mixed for only five minutes will likely be very low because the COD contents remain trapped in the cement slurry. Thus, it is clear that Yamada does not teach each and every element of Applicants' claimed invention and cannot be relied on for a showing of anticipation.

6. It is not obvious to one skilled in the art that a method described by Yamada will remove any COD content from fibers. Applicants specifically describe in the '389 Application that pulp has harmful compounds and impurities (collectively called COD) trapped inside the pores and cavities of the pulp fibers, which are produced during the pulping process. Pulp manufacturers have, as a result, developed (though unsuccessfully) a series of cleaning steps to address the problem of COD and impurities trapped in pulp (e.g., see paragraphs [0004] and [0006] of the '389 Application). Thus, to solve the problem of high impurities and COD content in pulp, a series of washing steps have been implemented by others. One who knows this problem would never look to the method described by Yamada (in which Portland cement, pulp and water are mixed in a cement slurry for five minutes before dewatering) as a method for removing COD content from pulp. The teaching of Yamada is contradictory to and provides no solution as to how to remove the COD content from pulp. One of ordinary skill in the art understands that there is no way to extrapolate the cement slurry method described by Yamada to a method for how to removed COD content from pulp in any practical manner. In fact, one of ordinary skill in the art knows that Yamada provides only falsely low values because the method does not successfully extract any or all COD components trapped in pulp. Thus, the Yamada reference is unable to teach or suggest anything about the actual COD content of the pulp because it is suggested by the very teaching of Yamada that the pulp of Yamada still had a large amount of COD and impurities trapped therein, inside the pores and cavities of the pulp.

7. Those skilled in the relevant art understand that preparing a cement slurry is not the same as preparing a fiber slurry. Yamada does not provide a fiber slurry and is, therefore, unable to accurately measure the COD content of the fibers. Those skilled in the relevant art know that, as described in the '389 Application (for example, see paragraphs [0004]-[0006]), COD compounds and impurities occur when pulp is prepared during the pulping process because some of the COD compounds and impurities are trapped in pulp when it is prepared. As taught in the '389 Application, COD extraction from pulp, particularly, extraction of impurities trapped in pulp, is through a method of pretreating pulp, such as that claimed, and that the pretreatment is performed prior to the pulp being added to a cement slurry. Thus, one skilled in the relevant art knows that a COD value obtained from a cement slurry cannot be extrapolated to or be compared with a COD value obtained from a fiber slurry that has been pretreated to remove COD. The Examiner cannot extrapolate more from a reference than what is taught and cannot assume that a COD value obtained from a cement slurry means that the fibers have no COD because much of the COD still remains trapped in the pulp, as would be understood by one of one skilled in the art and as taught as the '389 Application.

8. With Yamada, the Examiner is, in fact, relying on an entirely different teaching for a method of merely making a cement slurry. Yamada does not provide a method that is either reliable or capable of accurately assessing COD content. Moreover, one of ordinary skill knows that the COD measured is highly dependent on cement properties. This is evidenced by TABLE 1 in which Applicants duplicated the teachings of Yamada from paragraphs [0007] and [0008] using fibers processed by alternative methods (methods that were obviously not successful at reducing COD content to less than 4.5 kg/ton). It was found that the coefficient of variation (COV) was very high for both Sample X and Sample Y even though the COD measured from the water after dewatering the cement slurry was low.

TABLE 1.			
	Fiber COD (kg/ton)	Cement slurry COD (mg/L or ppm)	COV (%)
Sample X	5.9	14.5	21
Sample Y	8.1	24.6	8

9. As shown in TABLE 2, the invention claimed with the '389 Application consistently provides fibers having a low COD content that is less than 4.5 kg/ton, as evidenced by Sample A having a very low COV value. This is compared with the same type of fibers pretreated and processed by alternative and less effective processes that were not able to successfully reduce COD content to less than 4.5 kg/ton (Sample X and Sample Y, also shown in TABLE 1). The fiber COD for fibers processed by alternative and less effective processes (Sample X and Sample Y) was higher than that obtained for the low COD fibers processed as described and claimed with the '389 Application (Sample A). The COV values for such fibers processed by alternative and less effective processes remained low (Sample X and Sample Y) indicating that measurements of fiber COD in general is more consistent than measurements of cement slurry COD, as depicted with TABLE 1.

TABLE 2.			
	Fiber COD (kg/ton)	Fiber COD (mg/L or ppm)	COV (%)
Sample A	2.1	41.2	1.7
Sample X	5.9	117.3	2.6
Sample Y	8.1	161.2	1.1

10. For the reasons provided herewith, it is believed that Yamada neither anticipates nor is obvious over the claimed invention.

11. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Caidian Luo

July 28, 2003

Date